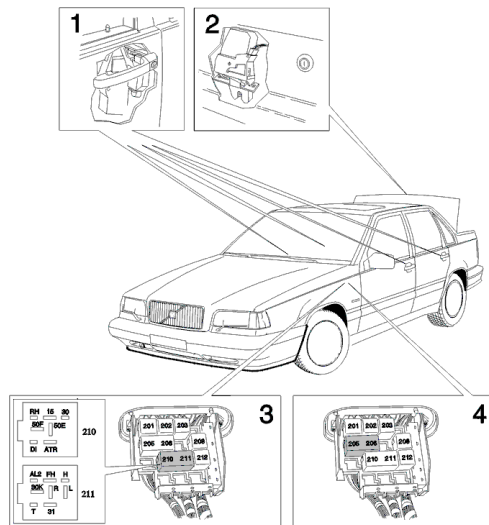


Overview

General



The following components in the car are used for all anti-theft alarm functions:

- 1. Door contacts
- 2. Trunk (boot) contact
- 3. Electrical control center with alarm relay plinth (items 210/211)
- 4. Electrical control center with central locking relay (items 205/206)

1. Door contacts

Contacts are integral to the door locks. When a door is opened the contact is grounded. The door contacts send control signals to the central locking relay, interior lighting and alarm control module.

2. Trunk (boot) contact

The trunk (boot) mechanism has an integral contact which is grounded when the trunk (boot) is opened. The same contact controls the trunk (boot) lighting.

3./4. Electrical control center with alarm and central locking system control module

Central locking with Guard Alarm I and II

With these alarms, the situation is the reverse i.e., it is the status panel (Guard Alarm I) or the alarm control module (Guard Alarm II) which receives the radio code and which in turn sends signals to the central locking relay telling it to lock or unlock.

AT switch

The AT switch consists of a two-position toggle microswitch and is located in the front door central locking units. The AT switch is triggered when locking or unlocking with the door keys. When the key is turned through 20° either way, the AT switch activates or deactivates the car's alarm system by sending a grounding signal to the central locking relay, which in turn sends a signal to the alarm control module.

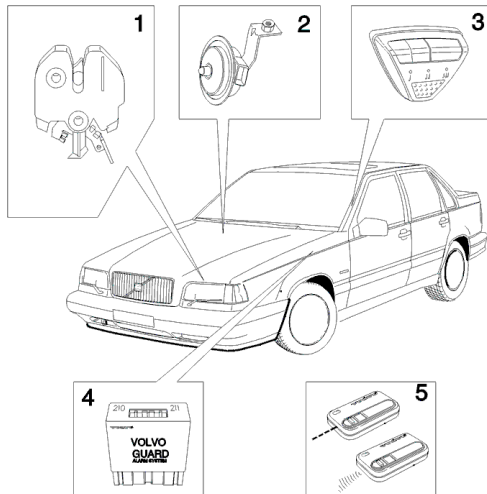
Wiring

The components above are already wired to the alarm relay plinth. The start inhibitor, turn

signals (indicators), horn and basic alarm indicator LED are also wired in.

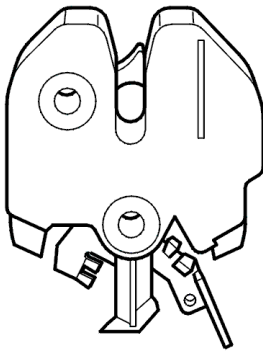
Guard Alarm I basic components

Guard Alarm I basic components:



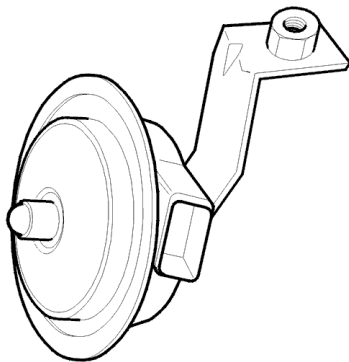
- 1. Hood (bonnet) contact
- 2. Horn (or siren)
- 3. Status panel, located on A-post
- 4. Alarm control module
- 5. Remote control (infra-red or radio control)

1. Hood (bonnet) contact



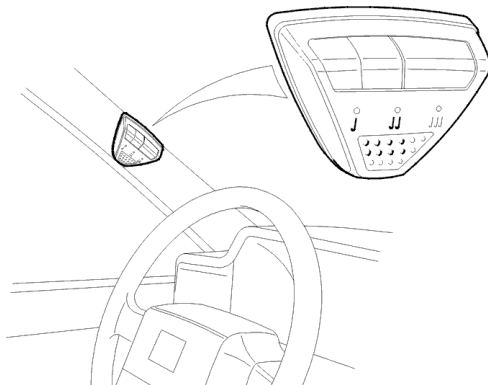
The LH hood (bonnet) catch has an integral contact which grounds when the hood (bonnet) is opened.

2. Audio/visual signal



When the alarm is triggered, it sets off a separate horn or siren and the car's turn signals (indicators) to attract attention.

3. Status panel



The status panel has 2 red LEDs to indicate the alarm status: activated, service mode, programming mode etc.

The status panel also has 3 red LEDs, each of which indicates a fault in its alarm loop, but also indicates if a door is open etc.

The LEDs indicate:

I = sensor loop, doors

II = sensor loop hood (bonnet) and trunk (boot) lid

III = sensor loop, extra sensor (optional accessory)

There is also a function key used when programming the alarm, programming the key code and shutting off sensor loop III.

Indication when driving or after driving

Status LEDs: no indication normally.

If service mode is activated, LEDs will flash briefly every three seconds.

Indicator LEDs: not on.

Fault in alarm loop after driving

Status LEDs: triple flash, three short pulses followed by a pause indicates a fault in one of the alarm loops.

Note! This fault indication will also appear if any of the doors, hood (bonnet) or trunk (boot) are open.

Indicator LEDs: indicate which alarm loop is faulty.

The alarm has been activated

Status LEDs: a brief flash every second.

Indicator LEDs: no indication.

The alarm has been triggered

Status LEDs: lit.

Indicator LEDs: no indication.

After turning the alarm off when it has been triggered

Status LEDs: no indication.

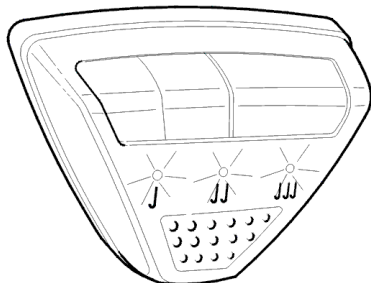
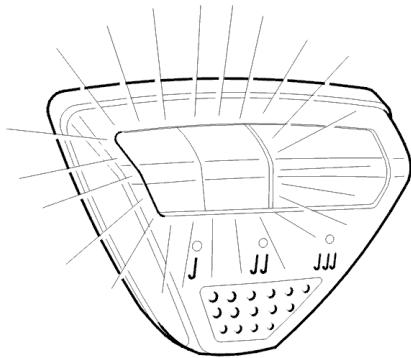
Indicator LEDs: indicate which alarm loop was triggered.

Note! Indication is reset when the ignition is turned on or the alarm activated.

The alarm is in service mode

Status LEDs: a brief flash every three seconds.

Indicator LEDs: no indication.



4. Alarm control module

The control module is installed on the relay plinth (position 210/211) in the passenger compartment fusebox. The sensor and indicator LED are connected to the control module via a separate lead to the top of the control module. The control module contains a preprogrammed microprocessor which can be reprogrammed for different functions. Among other things, it can hold up to three different key codes for remote controls.

There are three integral relays for:

Start inhibitor

Visual signal

Horn signal

Technically speaking, the control module communicates with the status panel via two leads:

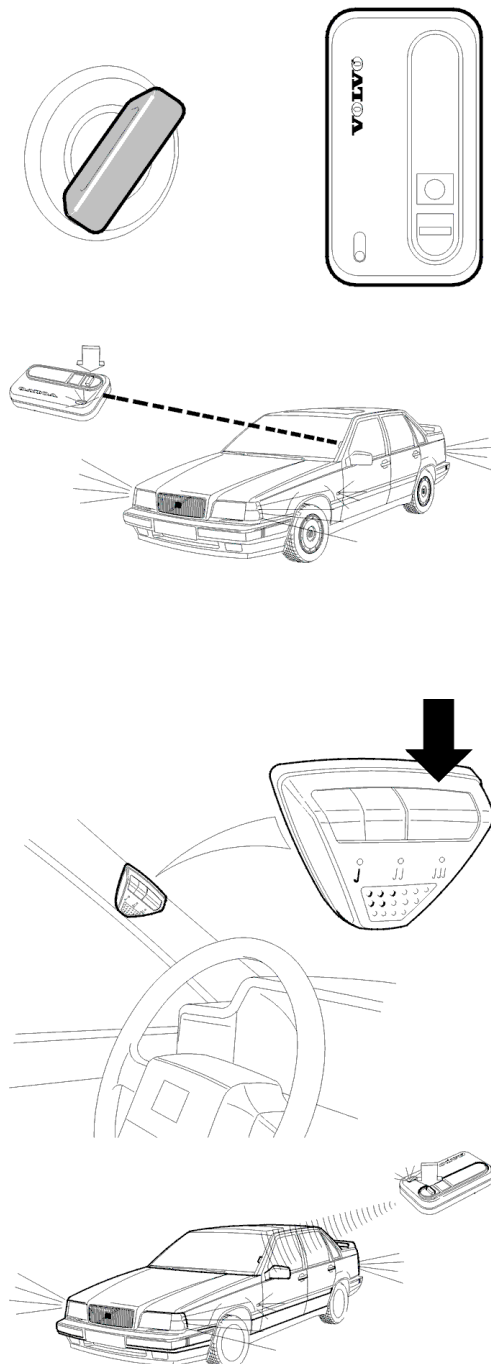
an incoming lead for the remote control code signals and function key;

an outgoing lead for the LEDs.

The control module communicates with all LEDs simultaneously. The signals have a code which indicates which LEDs are to be lit. This is the reason why the LEDs may flicker sometimes.

5. Remote control or door key

Operation is via the remote control. If the alarm was installed before 1994, it can also be operated using the standard door keys.



IR (Infra-Red) remote control

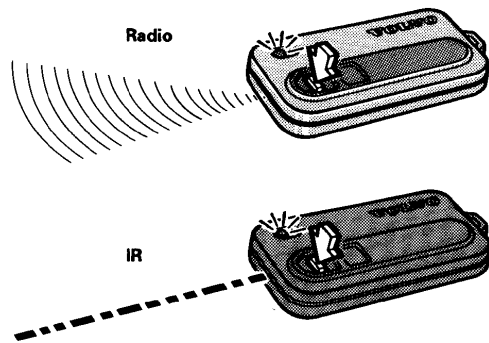
This remote control is black. The front end must be pointed at the RH window on the status panel, which is the IR receiver. The range depends on the ambient light levels, from approx. 0.5 metres in bright sunlight to approx. 5 meters in shadows. Some lights, such as fluorescent tubes, may cut down the range.

IR receiver

The infra-red receiver is built into the RH status panel window. The incoming series of IR pulses is sent on to the control module in the form of an electrical signal.

Radio control

This is gray, and may have different colors on the center strip (depending on the radio frequency). The remote control can be used to operate the alarm from any angle up to approx. 30–40 meters from the car. The



control range may vary if the radio signals are affected by the surroundings.

Radio receiver

The radio signal is received by the status panel.

Remote control code

When the remote control button is pressed, it generates a special code which is transmitted by radio or IR. The code signal consists of a 32-bit binary code, which allows for up to 4 million combinations.

Keep the button pressed down and the code will be sent over and over again, as a so-called series of pulses. As supplied, both remote controls in the set have the same code.

Sensor

The following sensors are available as options for the alarm:

Window sensor

Ultrasound sensor

Level sensor

Note! Up to 2 sensors can be connected at one time.

Guard Alarm I functions

Activation

Note! Some functions are programmable. So check the control module programming if there is any difference from the pre-programmed functions below.

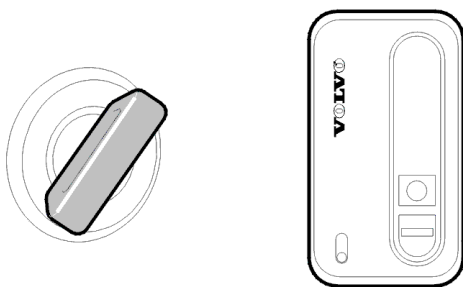
Activation is by pressing the remote control button. This sends a series of pulses. An IR or radio receiver receives the signal. The signal is converted and sent to the control module, which decides whether the series of pulses is the right one.

If the alarm was installed before 1994, it can also be activated by locking either front door or the trunk lid (boot) with the standard door key.

When activated, the car's turn signals (indicators) flash for approx. 2 seconds to confirm that the alarm has been set. The status LED gives a single short flash to show that the alarm is activated.

If there is a fault in any of the alarm loops, this is indicated by the status panel indicator LEDs as per "[Guard Alarm I basic components](#)".

Note! The alarm cannot be activated with the

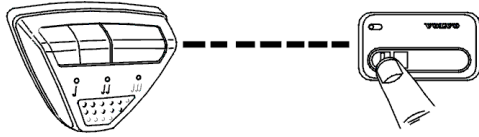


ignition on.

Deadlock

If the car is fitted with a deadlock, see **"Central locking system with deadlock"** (Not valid for USA/CDN), the alarm will only be activated with the deadlock on.

Deactivation



To deactivate the alarm, press the remote control button. If the series of pulses is received correctly, there will be a confirmation signal in the form of two short flashes from the car's turn signals (indicators).

If the alarm was installed before 1994, it can also be deactivated by unlocking either front door or the trunk (boot) lid using the standard door key.

If the alarm goes off

Note! Once the alarm has been activated, it cannot be triggered for 10 seconds.

The car is protected by:

- The standard door contacts.
- The contact on the LH hood (bonnet) catch.
- The standard trunk (boot) contact.
- The start inhibitor which prevents the engine from starting once the alarm has gone off (e.g. if someone tries to hot-wire it).
- One or two sensors (optional).

The alarm will go off if:

- The doors, hood (bonnet) or trunk (boot) are opened.
- The ignition is switched on (or the starter motor is hot-wired).
- The sensors detect any changes.
- When the alarm goes off, the horn or siren will sound for 30 seconds and the turn signals (indicators) will flash for 5 minutes. The status LEDs will then stop flashing and stay on continuously. When deactivated using the remote control, the indicator LEDs (I, II and III) will indicate which alarm loop triggered the alarm.

Note! The indicator LEDs will go out when the ignition is switched on or the alarm is reactivated.

When the audible alarm stops, the alarm reverts to guard mode.

The alarm will go off again if the intruder makes another attempt



If the car door is left open after an attempted theft, the alarm will go off again if another alarm loop (e.g. a sensor) is triggered or if the ignition is switched on.

Alarm from sensors

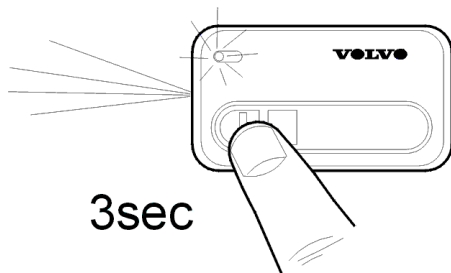
The horn sounds a warning for 5 or 30 seconds (programmable). The turn signals (indicators) flash for 5 minutes.

Note! A maximum of three alarms of this type can be triggered in any activation period.

Panic function

Press the button and hold it down for more than 3 seconds, and the alarm will go off. This can be used to attract attention in the event of an attack or if someone tries to break into the car or interfere with it. To switch the panic function off, press the remote control.

Note! The panic function will not work with the ignition on.



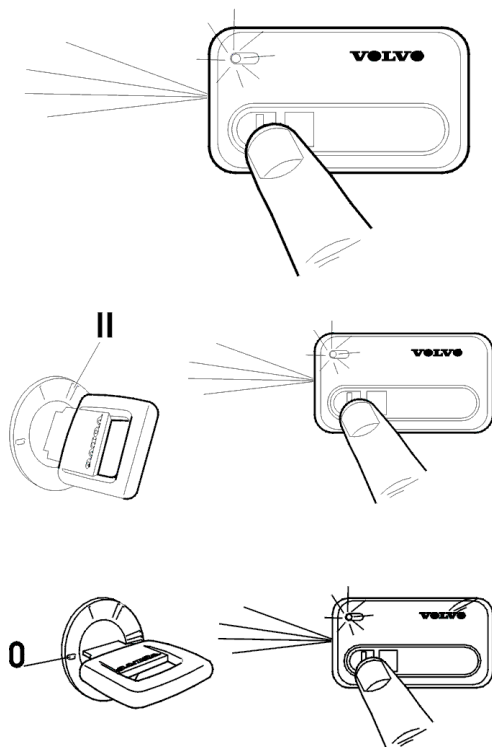
Service mode

Service mode is used when the car is for example in the workshops. In this mode, the alarm is switched off and will not react to any signals from alarm inputs. The car can be driven as if it were not equipped with an alarm system.

Activating service mode:

Note! If the car has a siren and rechargeable battery, these must be switched off separately using the appropriate key.

- Deactivating the alarm.



- Ignition on.
- Press the remote control button for 3 seconds.

Service mode is indicated by a brief flash every three seconds.

Always lock the car with the ordinary door key when the alarm is in service mode.

Exiting service mode:

- Ignition off.
- Press remote control button twice.

The alarm is activated when the button is pressed once and any unlocked doors will be

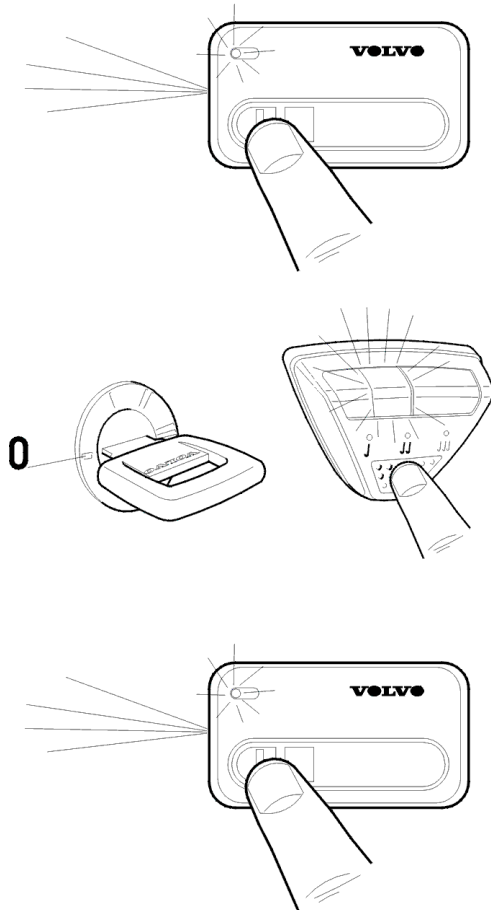
locked.

- Activate siren if fitted using the appropriate key.

Disconnecting sensor loop III

This function is useful if one wants to activate the alarm e.g. on a rough ferry voyage where a sensor might otherwise trip the alarm.

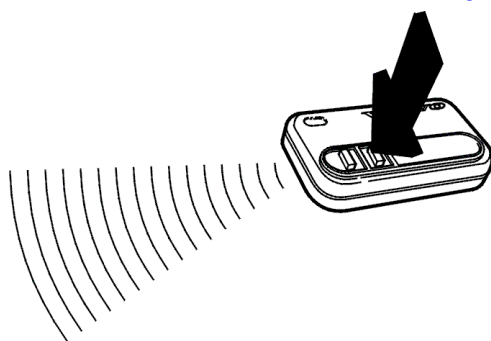
- Deactivate the alarm.



- Ignition off.
 - Press status panel function button.
- A brief audible acknowledgement signal indicates that sensor loop III is disconnected.

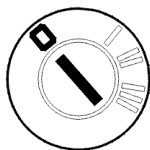
- Activate the alarm.
- The function is reset when the alarm is deactivated and the ignition turned on.

Remote control button 2



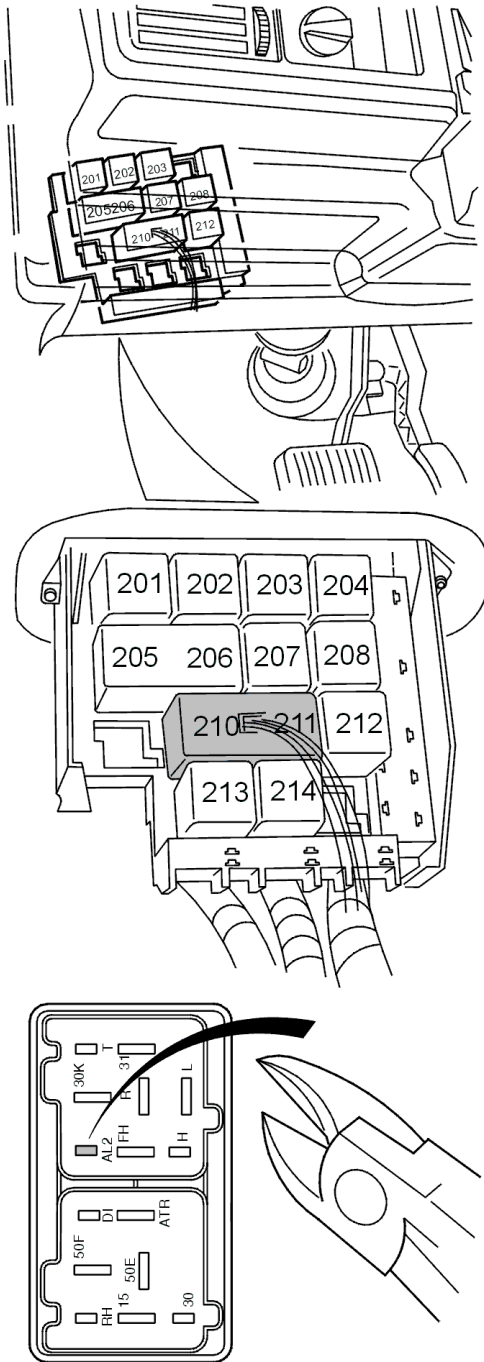
Remote control button 2 is used to control additional functions, such as starting the parking heater by remote control.

Disconnecting door key function



From 1994 on, Guard Alarm I has been changed so that it can only be activated and deactivated via the remote control. Function changes are carried out as below.

- Write down the radio code if any.
- Ignition off.
- Disconnect negative battery lead.
- Remove soundwall on driver's side.
- Remove alarm control module (position



- Remove alarm control module (position 210/211).

- Cut or bend back the pin marked AL2 to break contact with the leads. Take care not to damage pins next to it.

Checking alarm function

- Replace alarm control module (position 210/211).
- Connect battery.

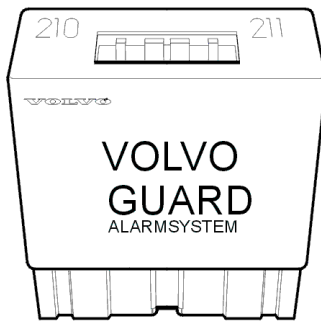
Check that alarm function has been changed and that alarm can now only be activated and deactivated via the remote control.

- Replace soundwall.
- Reset radio code if any.

Programming Guard Alarm I control module

Functions

The control module can be reprogramed to some extent to meet statutory requirements or



personal preferences.

1. Sensitivity, sensor loop III (e.g. window sensor)

Default value:

Sensitivity 3.

Sensitivity is divided into 8 different levels, where level 1 is the **highest** sensitivity. This only applies to sensors connected to sensor loop III; the two black 4-pin connectors on the alarm's wiring harness.

See installation instructions for the sensor in question.

This function is non-programable in later versions of Guard Alarm I.

2. Activation

Default value:

Hard automatic activation OFF

Soft automatic activation OFF

Reactivation OFF

Common to both HARD and SOFT automatic activation:

The alarm is activated automatically 20 seconds after the ignition has been switched off and the last door, hood (bonnet) or trunk lid (boot) has been closed.

The car's central locking system is NOT activated.

The alarm is NOT activated if there is a fault in either sensor loop I or II. Faults are indicated by the indicator LED concerned flashing rapidly.

HARD automatic activation:

The alarm is triggered immediately the car is tampered with.

SOFT automatic activation:

The visible and audible alarms are triggered when doors, the hood (bonnet) or trunk lid (boot) are opened.

However, if a door is opened, the audible alarm is delayed by 20 seconds. This gives enough time to deactivate the alarm, either by switching the ignition on or pressing the

remote control button.

SOFT activation provides less security. The alarm start inhibitor is not activated and sensor loop III is disconnected.

Reactivation:

After deactivating using the remote control, the alarm is automatically reactivated after two minutes unless a door, the hood (bonnet) or trunk lid (boot) have been opened. This is designed to prevent the alarm being deactivated accidentally by radio transmitters.

Note! If the car is equipped with a central locking system, the doors are locked when the alarm is reactivated.

3. Central locking system / Panic function

Default value:

Central locking system , ON

Panic function , ON

Either function can be programmed ON or OFF independently of the other.

4. Acknowledgement signal

Default settings:

Visible acknowledgement , ON

Audible acknowledgement , OFF

Visible acknowledgement button 2 , OFF

Visible acknowledgement – turn signals (indicators)

When the alarm is activated, a 2-second long acknowledgement signal is given by the turn signals (indicators). When it is deactivated, a similar signal (2 brief flashes) is given.

Audible acknowledgement – horn

When the alarm is activated, the horn gives a brief acknowledgement signal. When it is deactivated, a similar acknowledgement signal (2 short audible signals) is given.

Visible acknowledgement – button 2

When an extra function is being remote controlled (such as a parking heater), a brief acknowledgement signal is given by the turn signals (indicators) each time the control module receives a signal from remote control button 2.

Electrical installation: See separate installation instructions for two-button remote controls.

5. Alarm duration, sensor loop III (e.g. window/level sensor)

Default setting:

Alarm duration 5 or 30 seconds.

This time applies only to sensors connected to sensor loop III and can be 5, 15, 20 or 30 seconds.

6. Audible alarm pattern, alarm from sensor loop I (doors) and/or II (hood (bonnet)/trunk (boot) lid)

Default setting:

Signal pattern 4.

See ["Programming Guard Alarm I functions "](#) .

7. Audible alarm pattern, alarm from sensor loop III (e.g. window/level sensor)

Default setting:

Signal pattern 6.

See ["Programming Guard Alarm I functions "](#) .

8. Visible alarm pattern

Default setting:

Signal pattern 3.

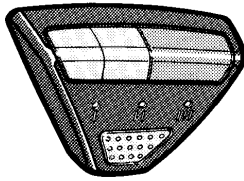
See ["Programming Guard Alarm I functions "](#) .

Programming Guard Alarm I functions

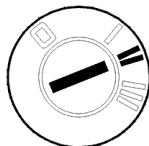
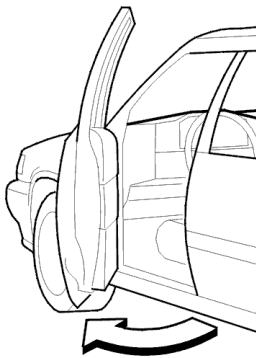
Programming mode

To change or check the control module programming, the alarm must first be set to programming mode.

The alarm should be deactivated.



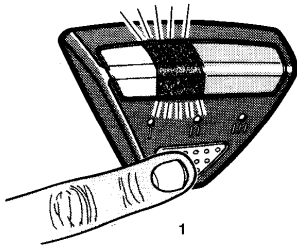
1



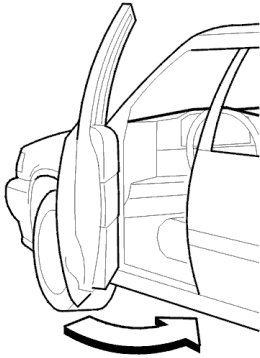
- Open the driver's door.

- Ignition on.

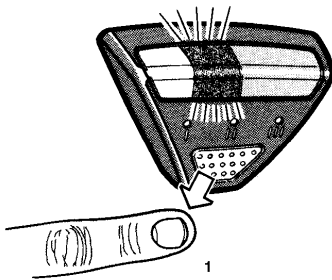
- Press the function button and hold it down.
Status LED 2 will light after approx. 3 seconds.



Hold the button down.
- Shut door.



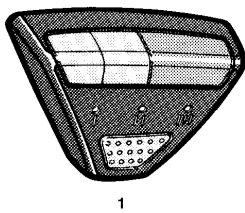
- Release the function button.
The alarm can now be programmed.



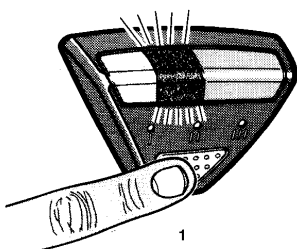
Programming

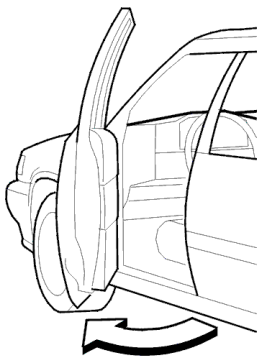
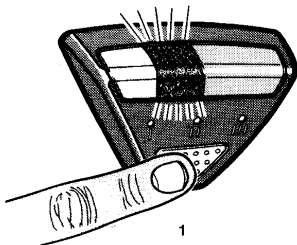
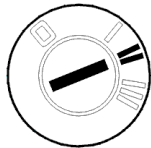
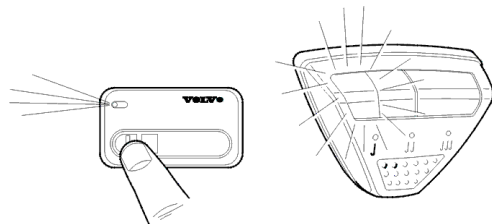
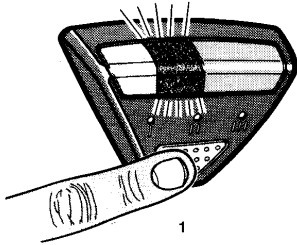
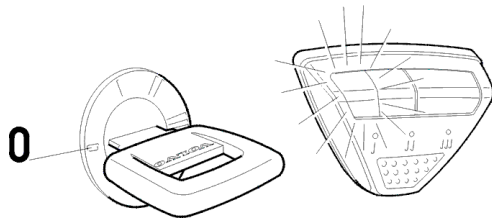
Programming can be interrupted at any time by opening the door. The alarm then reverts to standard mode.

Indicator LEDs I, II and III display the selected function and programmed value.



- Use the function button to advance to the function to be changed.
Indicator LEDs I, II and III light up or indicate as per [Function table](#).





- Ignition off.
Status LED 1 should light up.

The alternative/signal pattern set is displayed as a combination of lit and unlit indicator LEDs as per [Programming table](#) and [Signal pattern diagram](#).

To change the setting, advance to the required setting using the function button.

Save the new setting

- Press remote control button.
When status LED 1 starts flashing, the new value has been saved.

If further functions are to be changed:

- Ignition on.
- First, advance to the function to be changed.

When completely finished

- Open door.
The alarm will then revert to standard mode.
Inform the customer of current programming and note any new settings in the customer's owner's manual.

Function table

Function LED I II		
	III,	
1	o o o	Sensitivity Sensor III

2	* o o	Hard automatic activation Soft automatic activation Reactivation
3	o * o	Central locking system Panic function
4	* * o	Visible acknowledgement Audible acknowledgement Visible acknowledgement button 2
5	o o *	Alarm duration, sensor III
6	* o *	Alarm pattern Sensor I and II
7	o * *	Alarm pattern Sensor III
8	* * *	Visible alarm pattern

Programming table

Note! Pre-programmed values are presented with bold characters.

		*Indicator LED on							
o Indicator LED off									
I II III	I II III	I II III	I II III	I II III	I II III	I II III	I II III	I II III	
o o o	* o o	o * o	* * o	o o *	* o *	o * *	* * *		
Function		Alternatives, function 1 - 5							
1	Sensitivity sensor III	1	2	3	4	5	6	7	8
2	Hard auto. activation	Off	Off	On	Off	Off	On		
2	Soft auto. activation	Off	On	Off	Off	On	Off		
2	Reactivation	Off	Off	Off	On	On	On		
3	Central locking	Off	On	Off	On				
3	Panic function	Off	Off	On	On				
4	Visible acknow.	Off	On	Off	On	Off	On	Off	On
4	Audible acknow.	Off	Off	On	On	Off	Off	On	On
4	Visible acknow. button 2	Off	Off	Off	Off	On	On	On	On
5	Alarm duration sensor III	5 sec	15 sec	20 sec	30 sec				
		Signal patterns, function 6 - 8 (siren should be set to signal (2) for sufficient volume)							
6	Audible alarm pattern sensor I and II	1	2	3	4	5	6	7	8
7	Audible alarm pattern sensor III	1	2	3	4	5	6	7	8
8	Visible alarm pattern	1	2	3	4	5	6	7	8

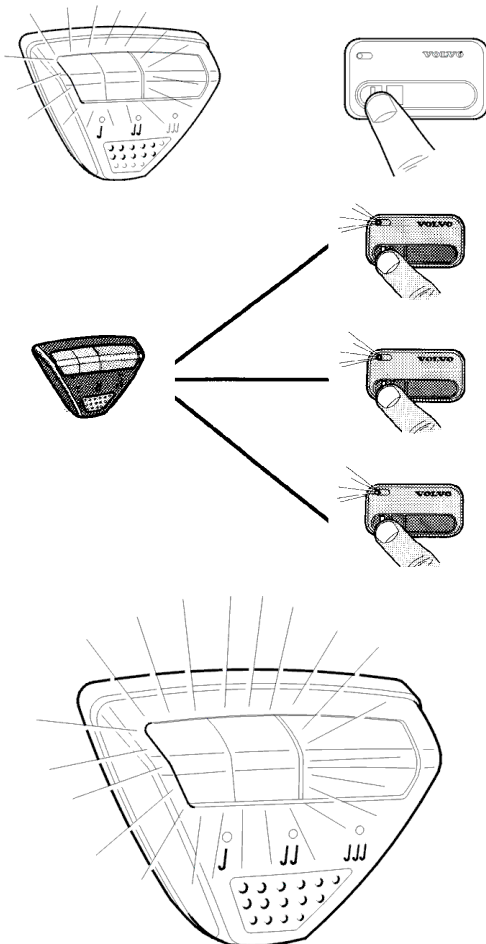
Signal pattern diagram

* = Sec

★	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						
7						
8						

Programming Guard Alarm I key code

General



Each remote control has its own unique key code. Both remote controls supplied as a new set have the same code.

The code is programmed into the control module on delivery.

The control module can hold up to 3 key codes.

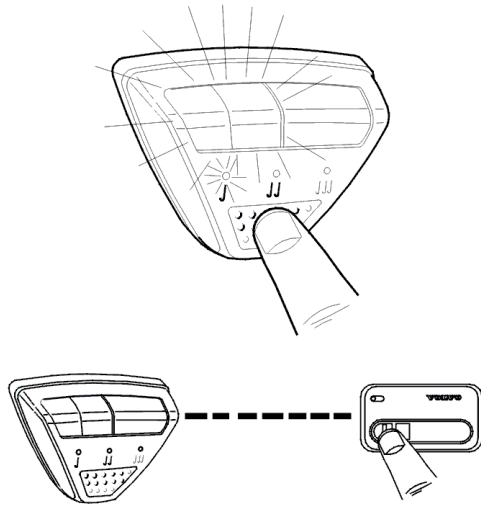
The remote control is programmed by sending the key code to the control module for recording.

When programming the key code, the status panel indicator LEDs are used to indicate free and occupied inputs in the control module, and in this case they have nothing to do with the different alarm loops.

Note! If no key code is programmed, this is indicated by a single flash from the status LEDs. Control modules from spares stock do not have any key code programmed in. When programming key codes on these control modules, one need only transmit a code signal using the remote control. Programming is otherwise as shown in the diagram.

Programming

- Deactivate alarm.
- Close all doors, hood (bonnet) and trunk (boot).
- Ignition on.
- Press function button on the status panel until the status LEDs and indicator LED I are



lit.

- Release function button.
- Using the status panel function button, advance to unoccupied key code locations I, II or III.

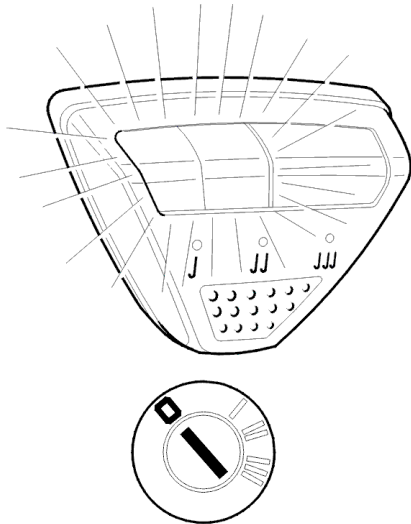
An occupied location is indicated by a flashing LED, an unoccupied location by a steadily lit LED. If a code is programmed into an occupied location, the old code is erased.

- Select one of the 3 locations.
- Send a code signal using the remote control.

If this is not done within 10 seconds, the alarm reverts to standard mode.

The alarm will acknowledge an approved code with brief flashes of the status and indicator LEDs before reverting to standard mode.

If programming does not work, this may be because:

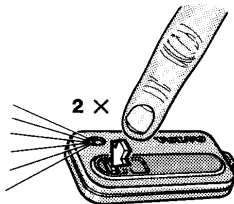


The alarm is in service mode

The status LEDs flash briefly every three seconds.

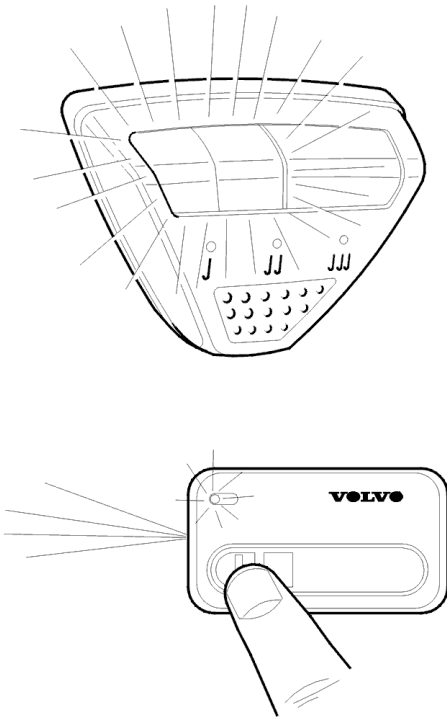
Action:

- Ignition off.
- Press remote control twice to activate alarm.
- Program new key code in.



The alarm is activated

The status LEDs give short single flashes.



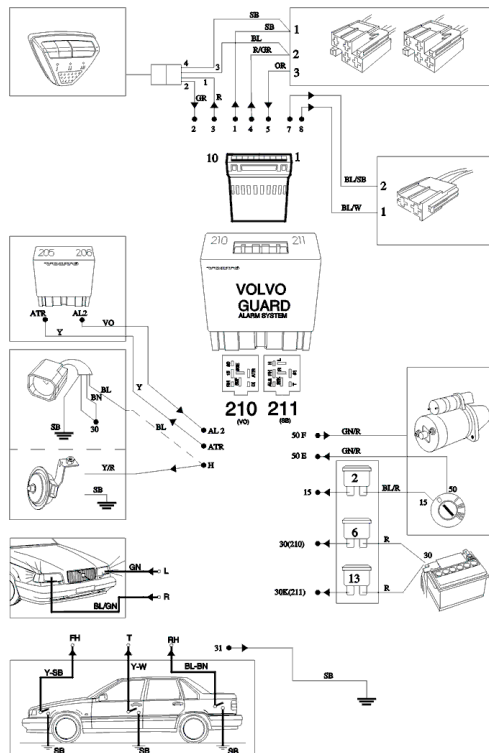
Action:

- Press remote control to deactivate.

The alarm does not react when code is transmitted

- Follow fault tracing procedure as per "Checking activation and deactivation functions. Guard Alarm I".
- Use a new remote control.
- Program key code in.

Guard Alarm I outline circuit diagram



Note! Be careful to check the wiring diagram for the model you are actually working on as there may be some differences in designations of connectors etc.